

Unidad Didáctica

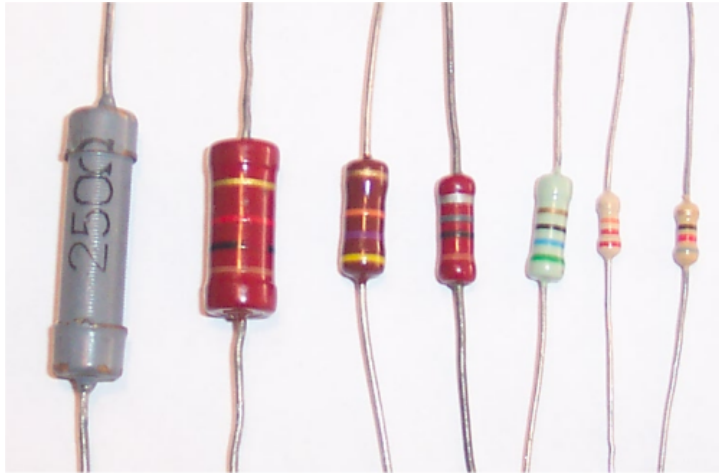
Electrónica Básica



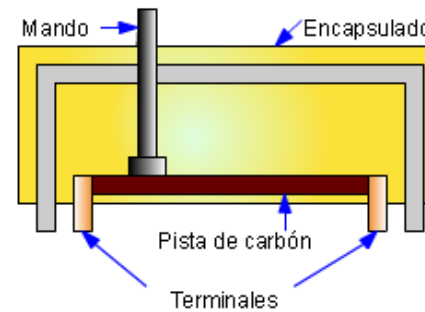
3º ESO

Resistencias

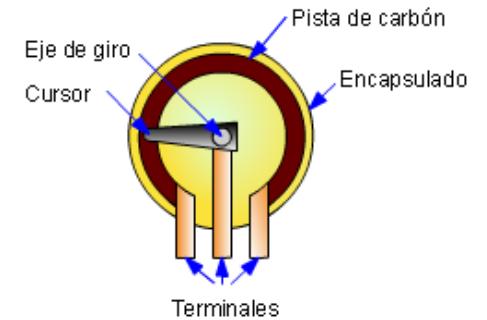
Fijas



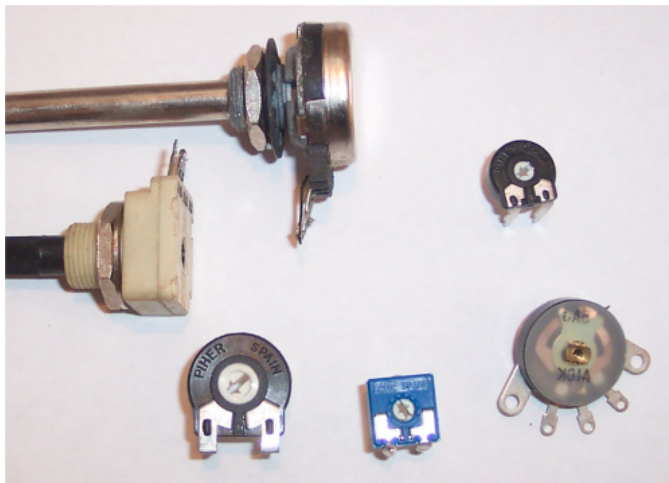
Lineal



Rotativo



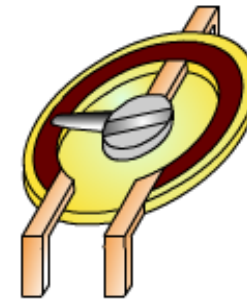
Potenciómetros



Variables



Conexión vertical
ajuste horizontal



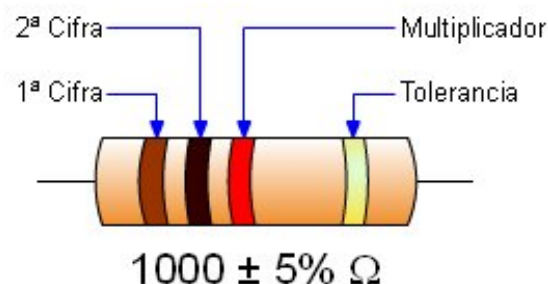
Conexión horizontal
ajuste vertical

Resistencias ajustables

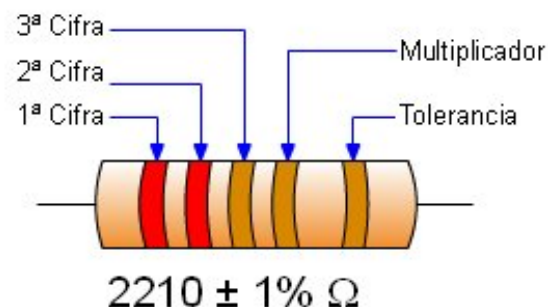
Código de colores

Código de colores

Resistencia normal

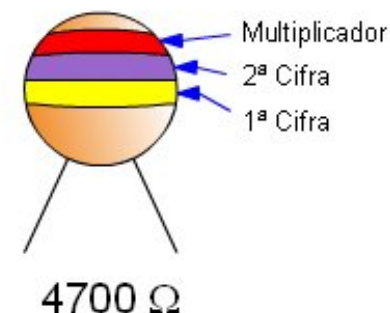


Resistencia de precisión



	1ª Cifra	2ª Cifra	3ª Cifra	Multiplicador	Tolerancia
NEGRO	0	0	0	x1	
MARRÓN	1	1	1	x10	±1%
ROJO	2	2	2	x100	±2%
NARANJA	3	3	3	x1.000	
AMARILLO	4	4	4	x10.000	
VERDE	5	5	5	x100.000	±0,5%
AZUL	6	6	6	x1.000.000	
VIOLETA	7	7	7	Oro x0,1	Oro ±5%
GRIS	8	8	8	Plata x0,01	Plata ± 10%
BLANCO	9	9	9		Sin color ± 20%

Resistencia NTC

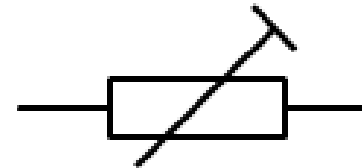


Símbolos de las resistencias

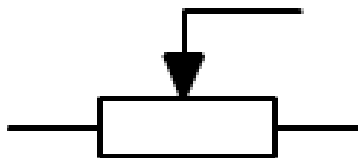
Resistencia



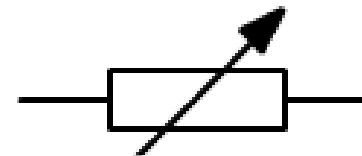
Resistencia variable
con valor preajustado



Potenciómetro

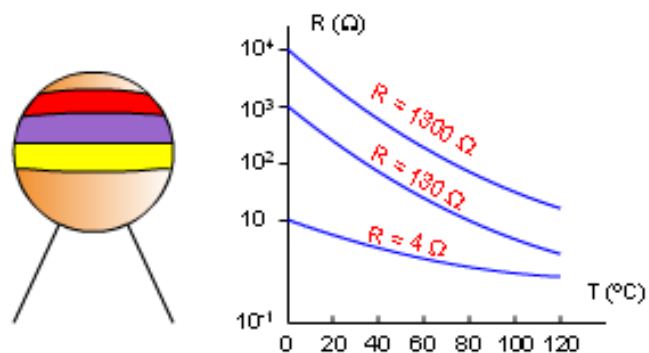


Resistencia variable

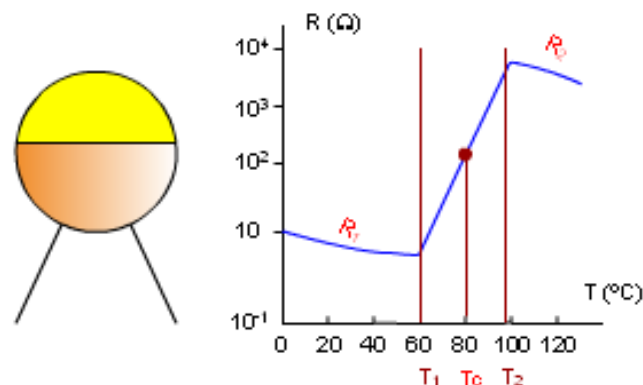


Resistencias dependientes

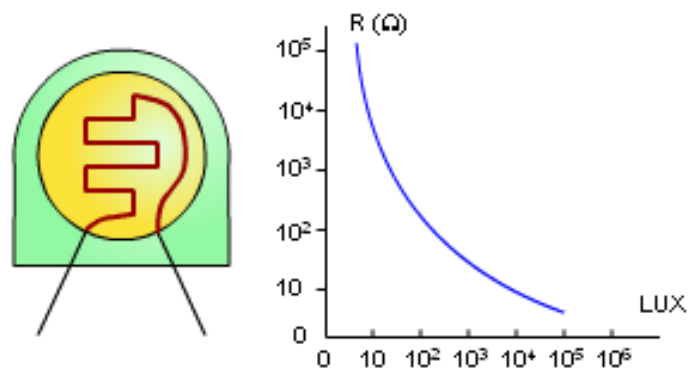
Resistencia NTC



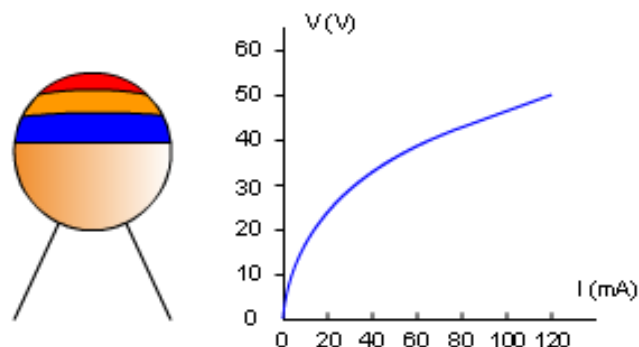
Resistencia PTC



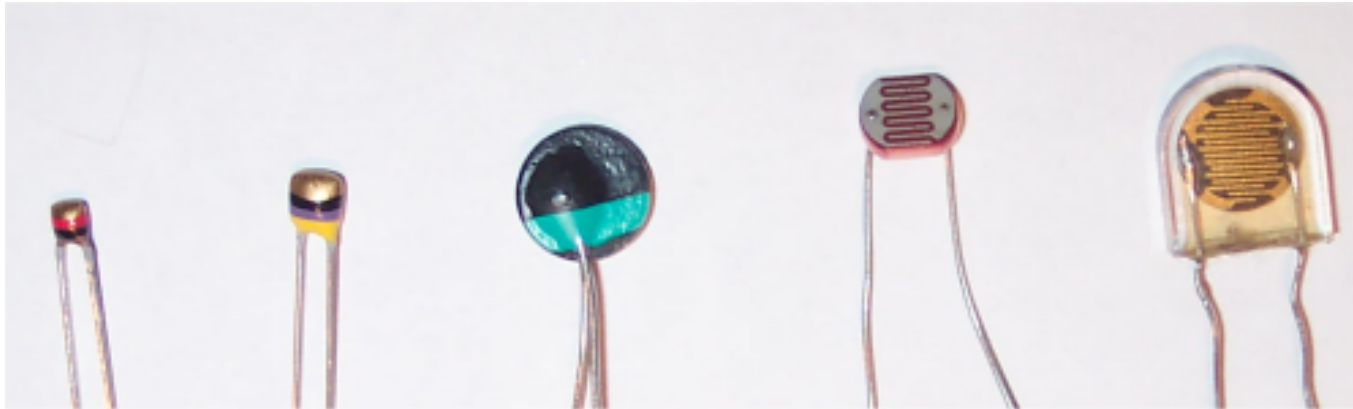
Resistencia LDR



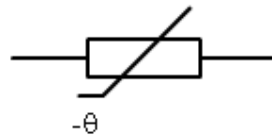
Resistencia VDR



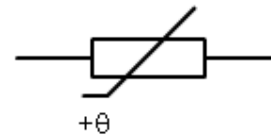
Resistencias dependientes



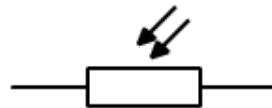
Símbolo NTC



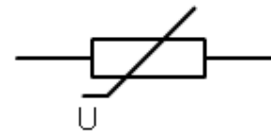
Símbolo PTC



Símbolo LDR

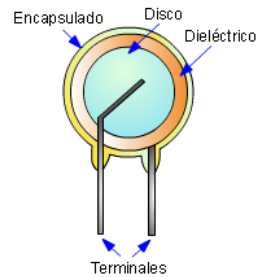


Símbolo VDR

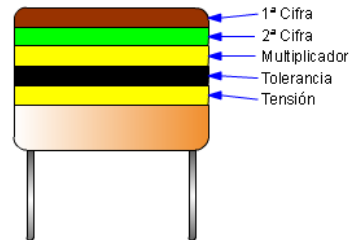


Condensadores

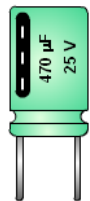
Cerámico



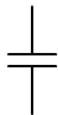
Poliéster



Electrolítico de aluminio



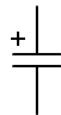
Condensador



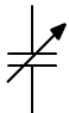
Electrolítico de tántalo



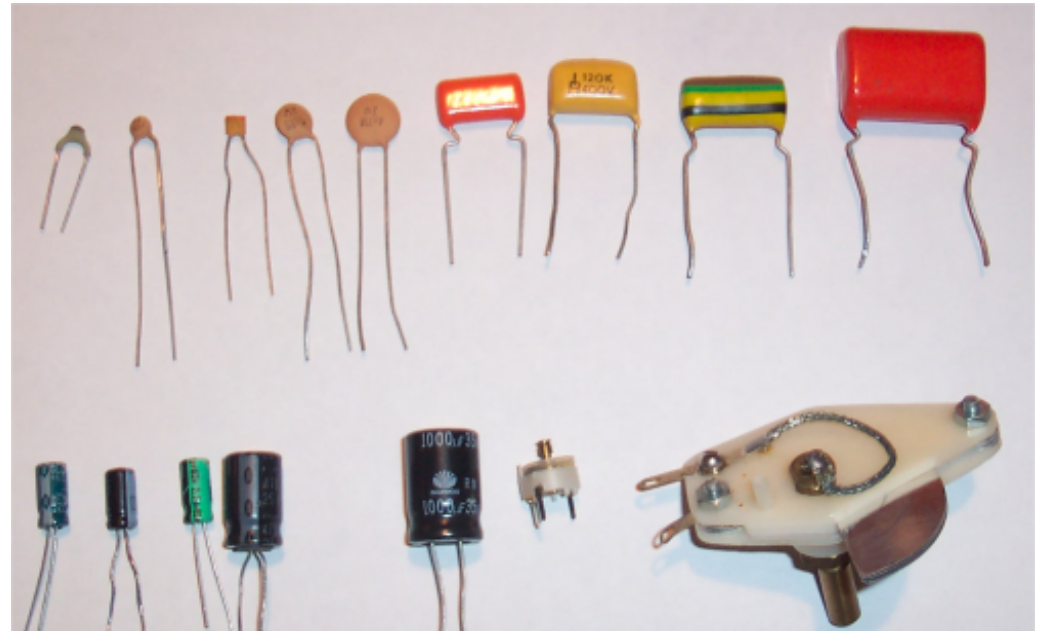
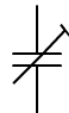
Condensador electrolítico



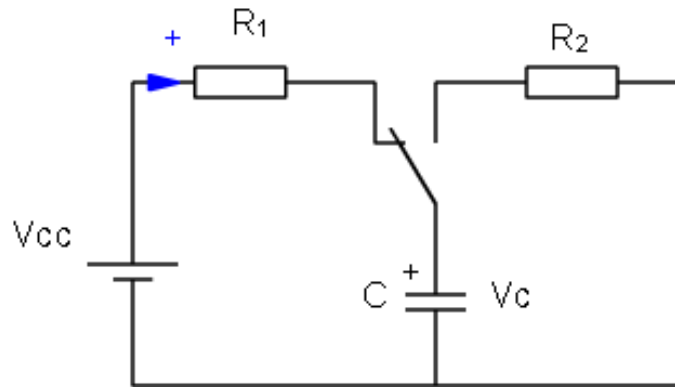
Condensador variable



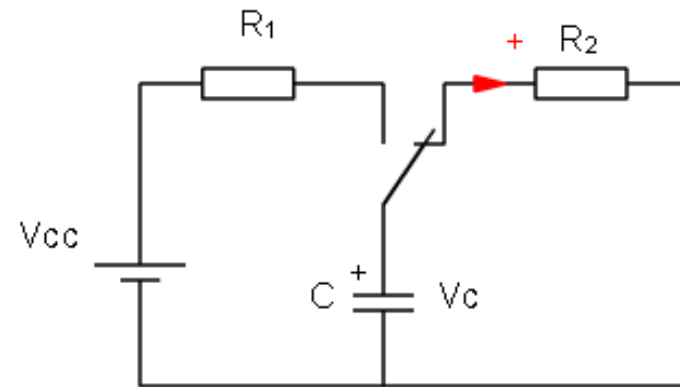
Condensador ajustable



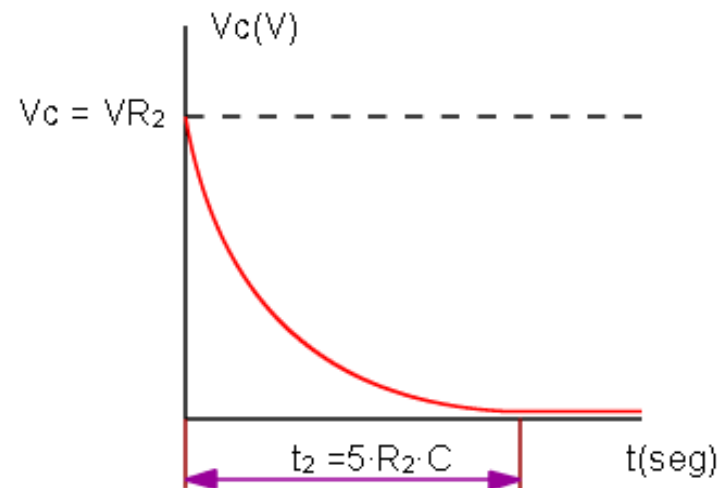
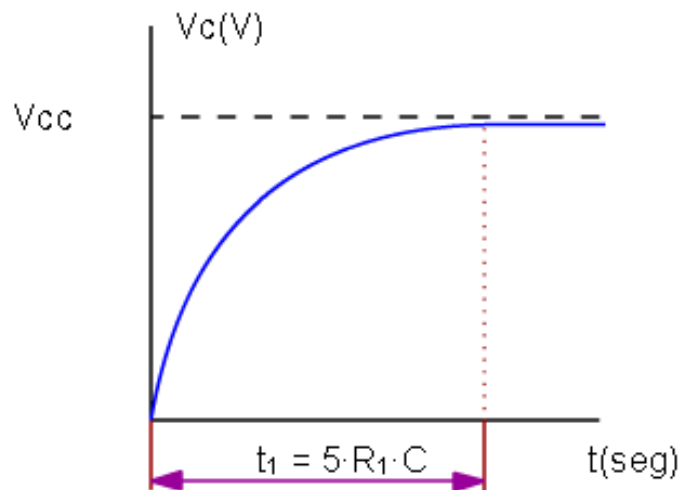
Carga y descarga del condensador



Carga del condensador



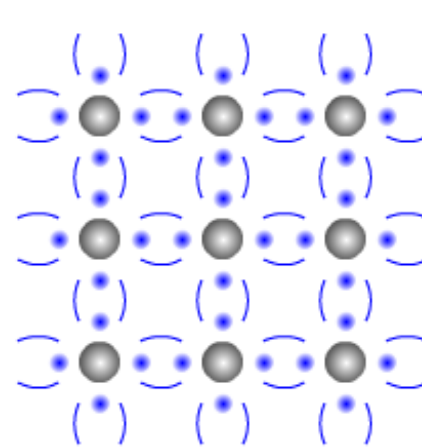
Descarga del condensador



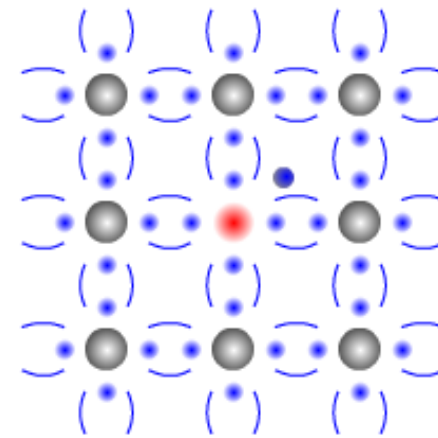
Material semiconductor

Leyenda

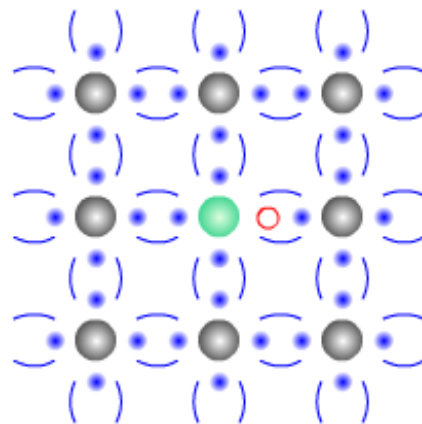
- Átomo semiconductor Si, Ge
- Electrón de valencia
- Enlace covalente
- Átomo impureza (Sb)
- Electrón libre
- Átomo impureza (In)
- Falta de un electrón hueco



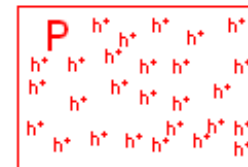
Material neutro



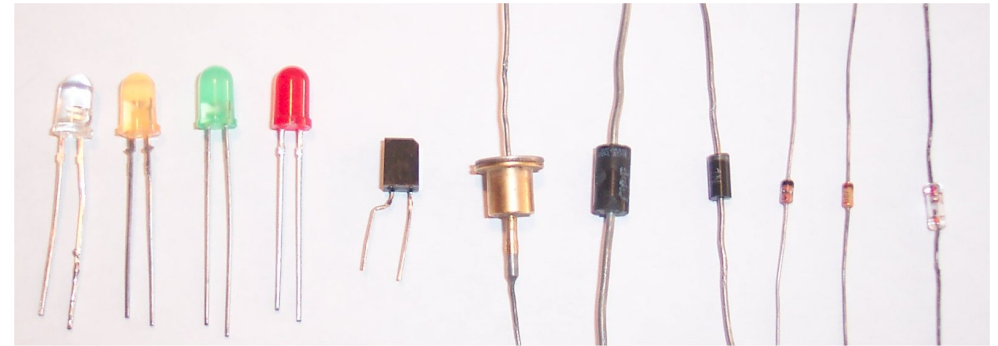
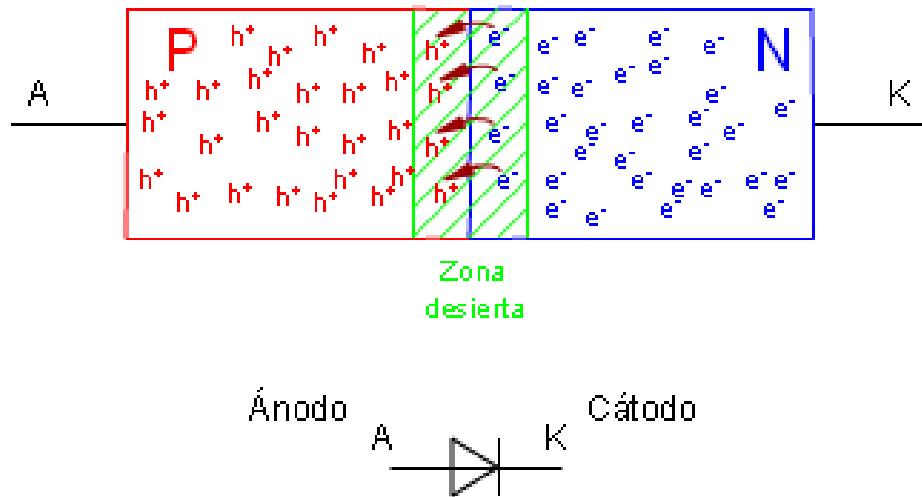
Material N



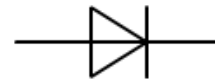
Material P



Diodo, tipos



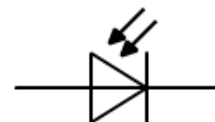
Diodo



Diodo LED



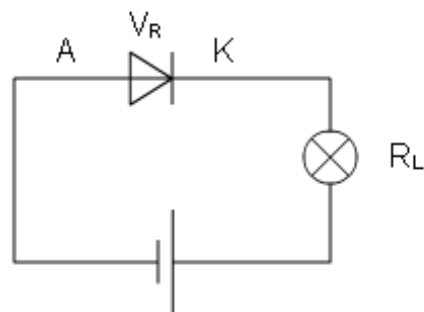
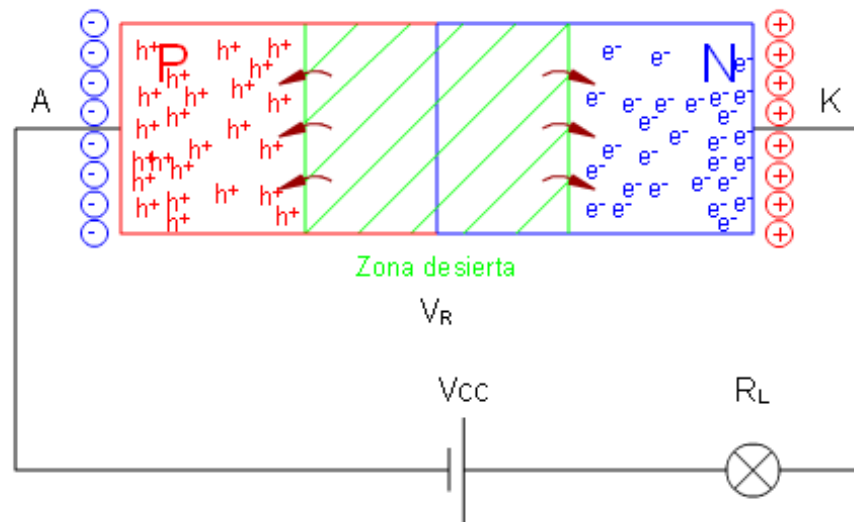
Fotodiodo



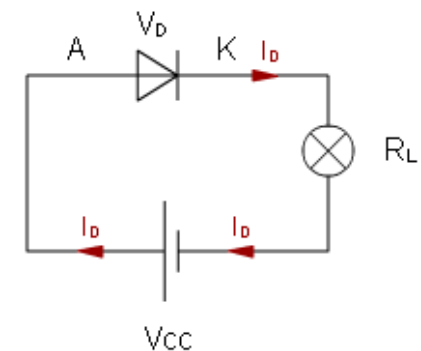
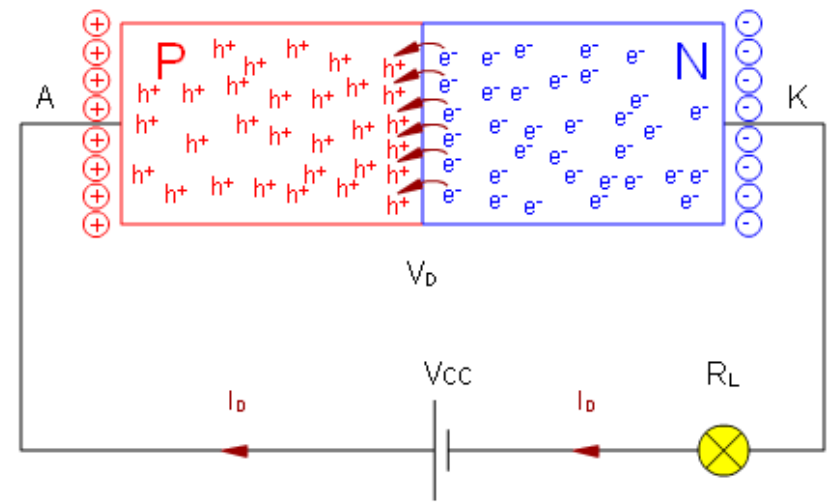
Diodo Zener



Polarización del diodo

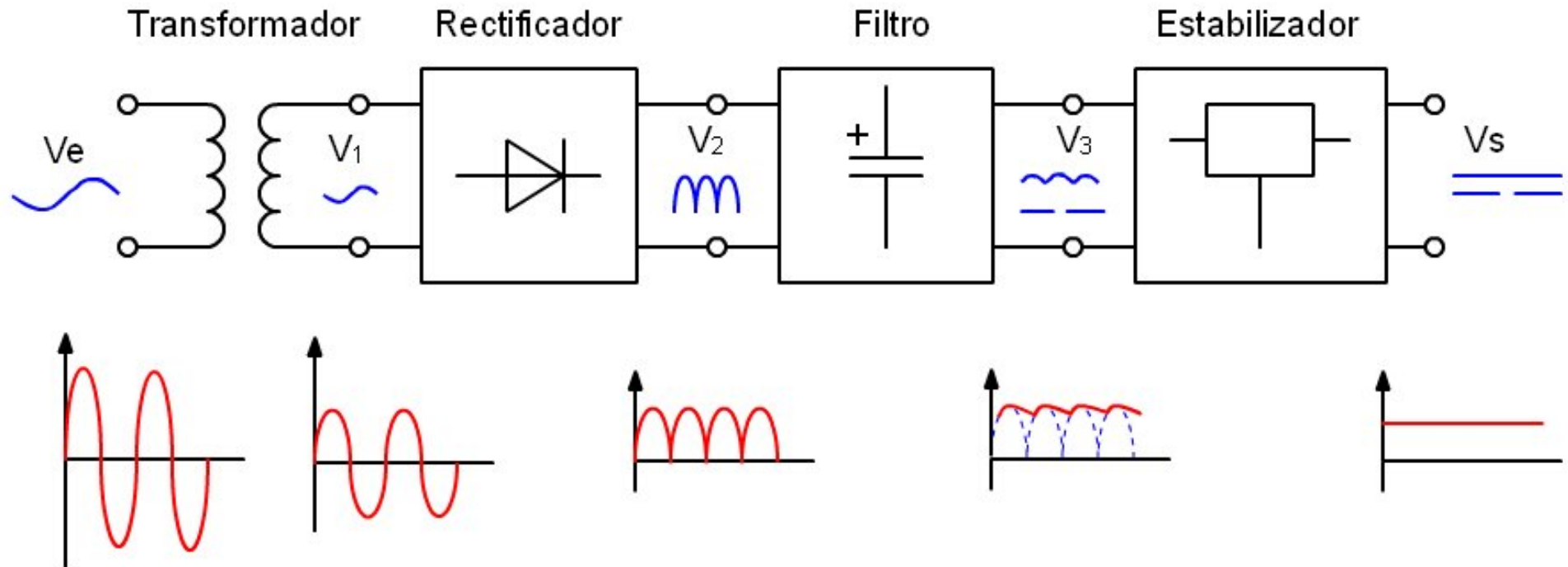


Polarización inversa

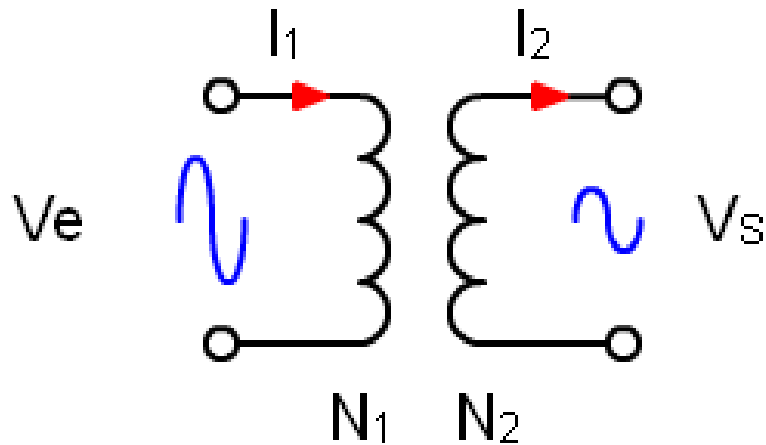


Polarización directa

Fuente de alimentación



Transformador



$P_1 = P_2$ (potencia del devanado 1 = potencia del 2)

o lo que es lo mismo:

$$V_e \cdot I_1 = V_s \cdot I_2 \Rightarrow V_e / V_s = I_2 / I_1$$

También se cumple:

$$N_1 / N_2 = V_e / V_s = m \text{ (relación de transformación)}$$

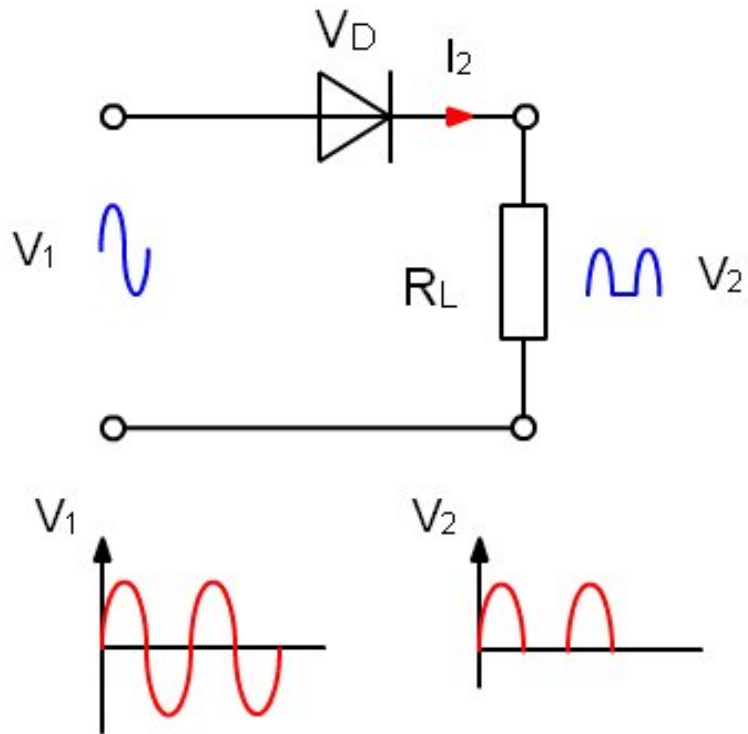
Donde:

N_1 = número de espiras del devanado 1

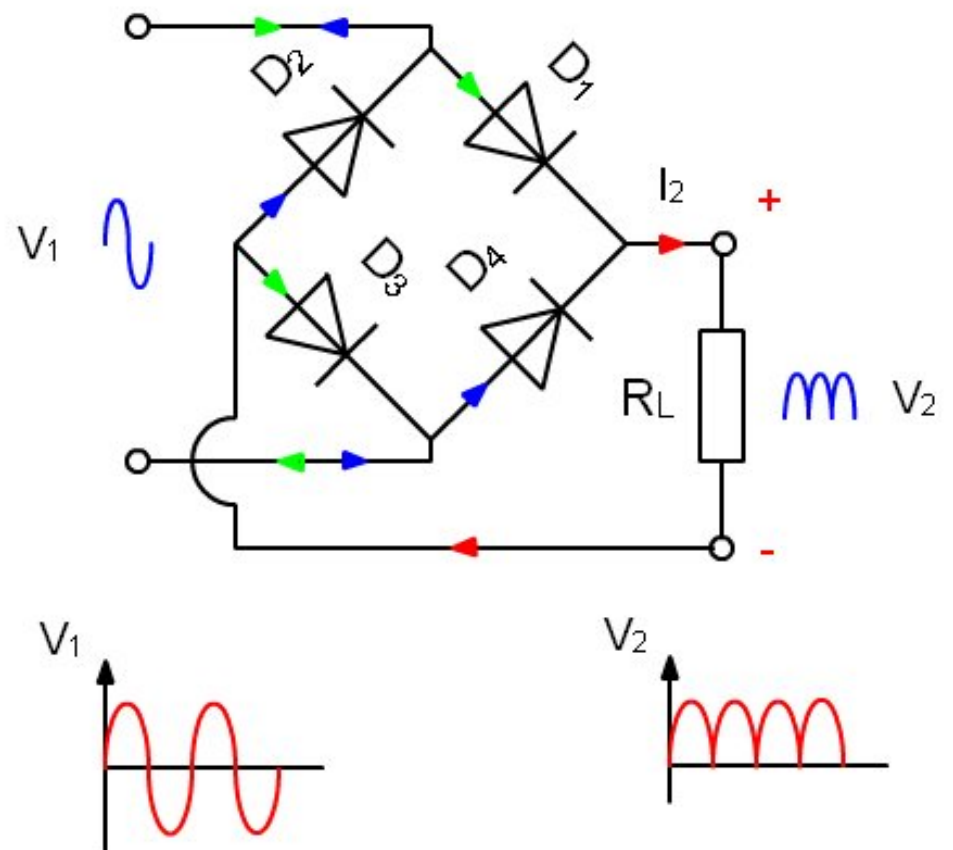
N_2 = número de espiras del devanado 2

Rectificador

De media onda

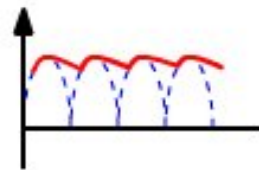
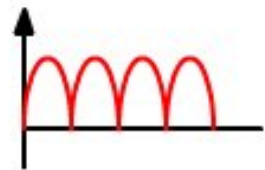
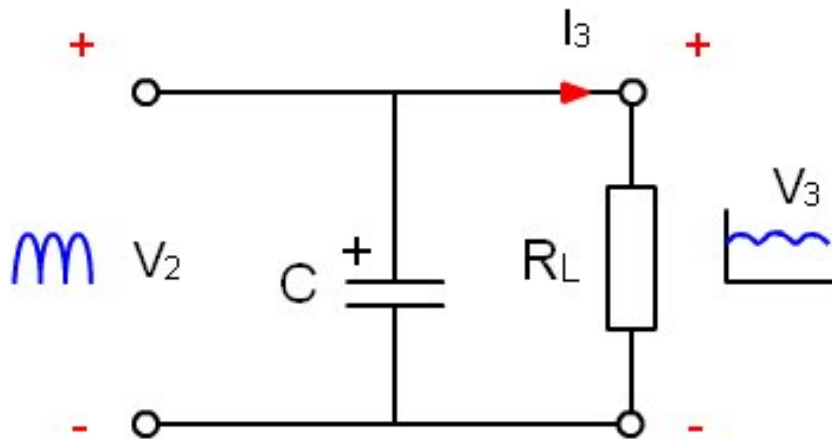


De onda completa

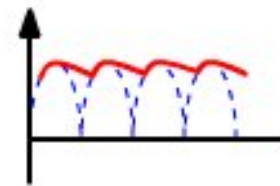
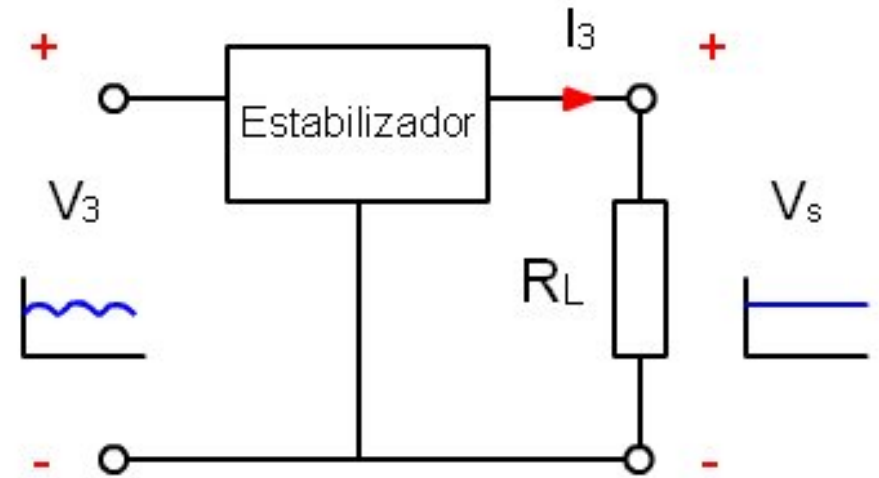


Filtro y estabilizador

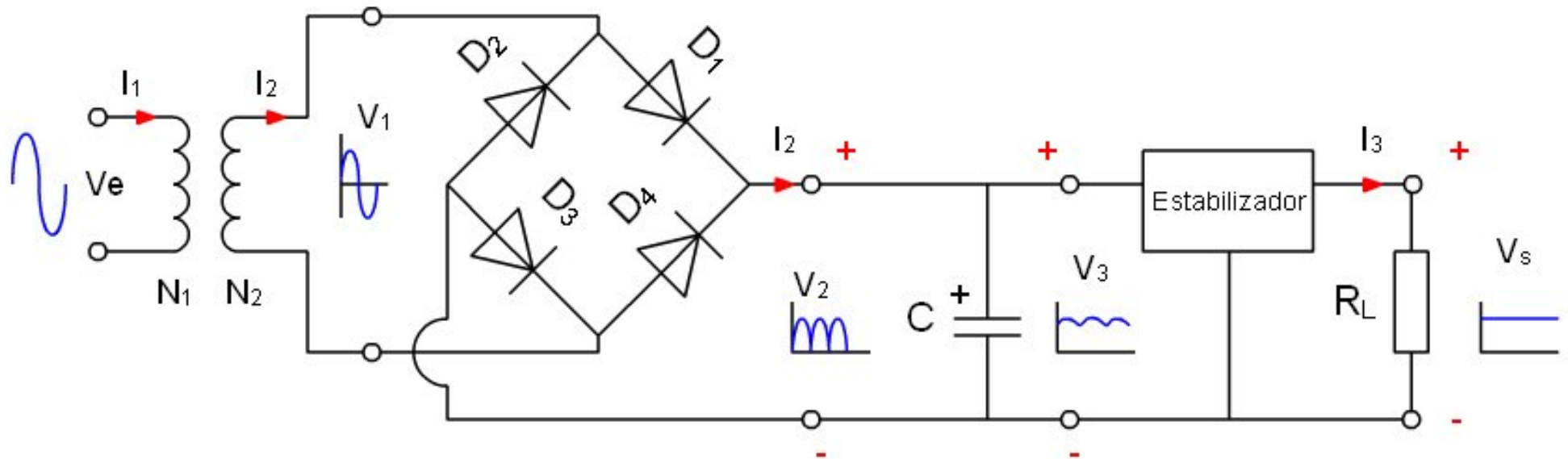
Filtro



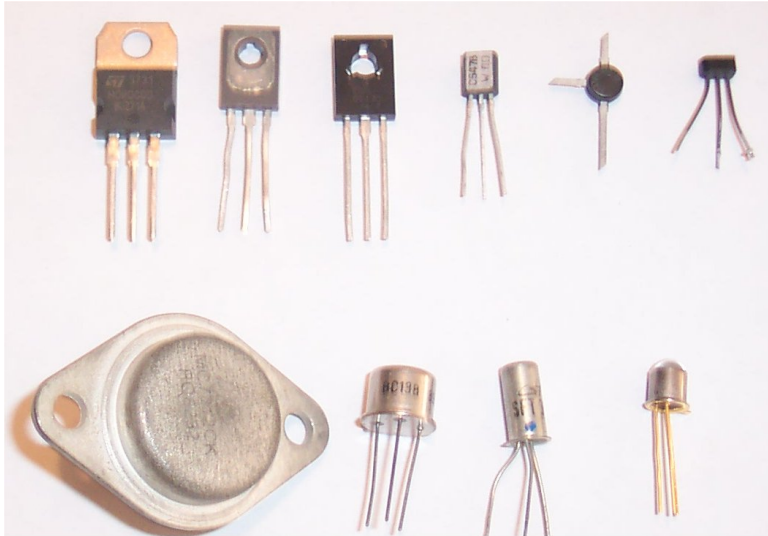
Estabilizador



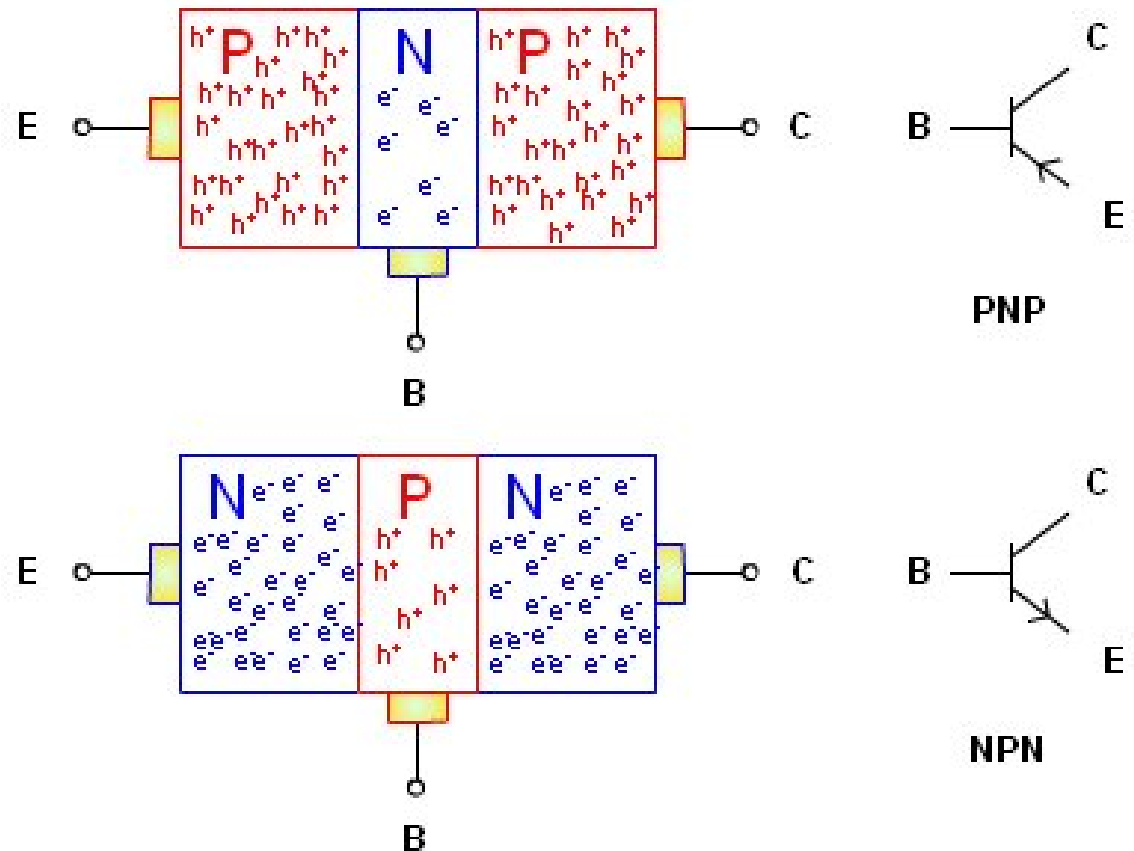
Fuente de alimentación real



Transistor, tipos y símbolos

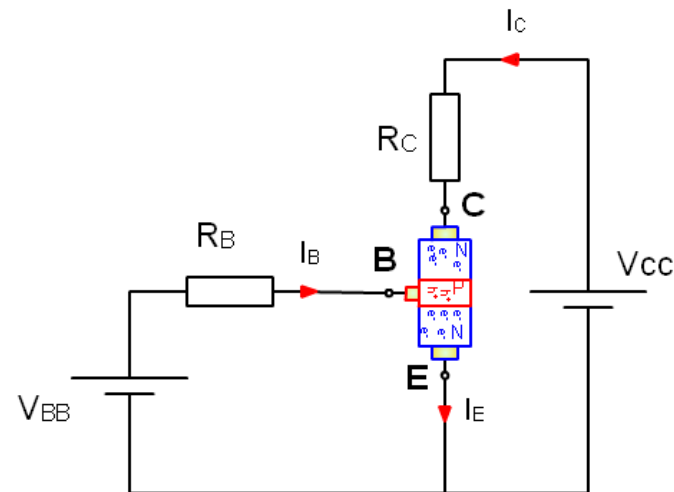
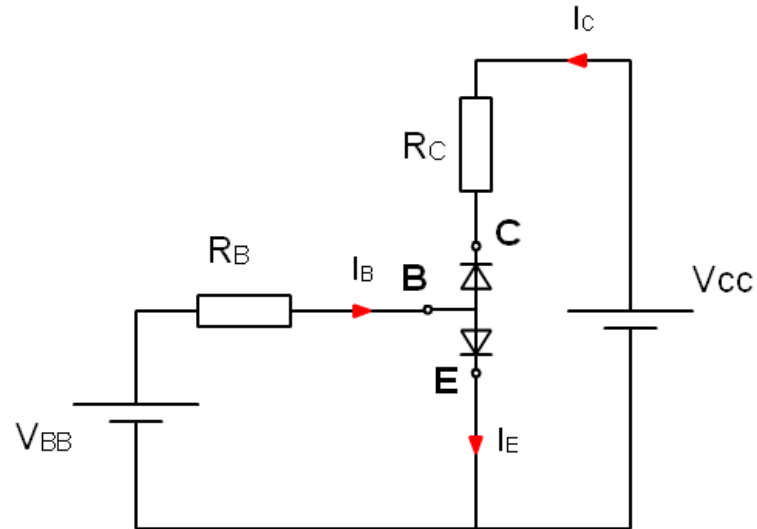
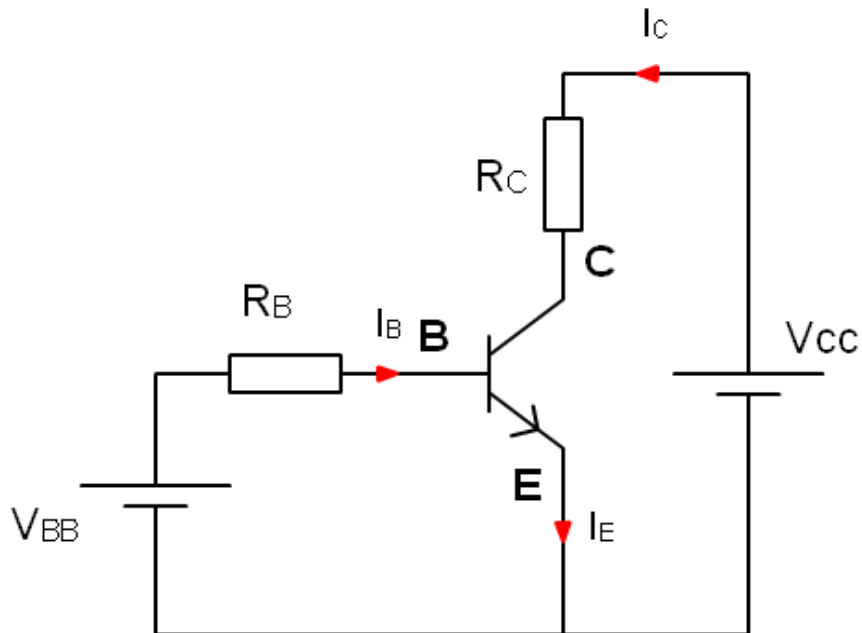
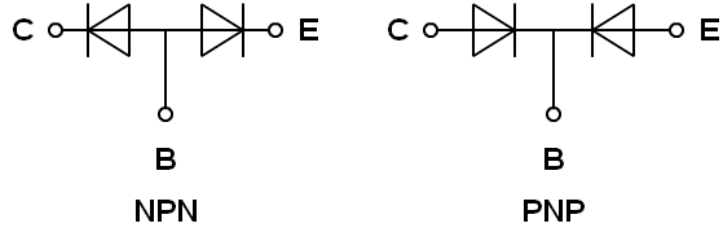


Símbolos

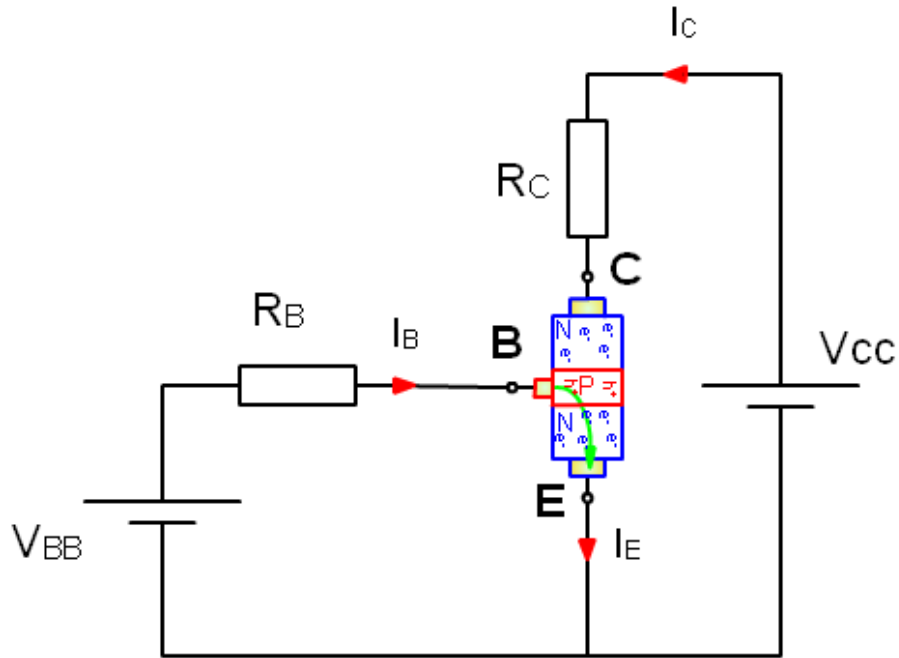


Transistor, polarización, circuitos equivalentes

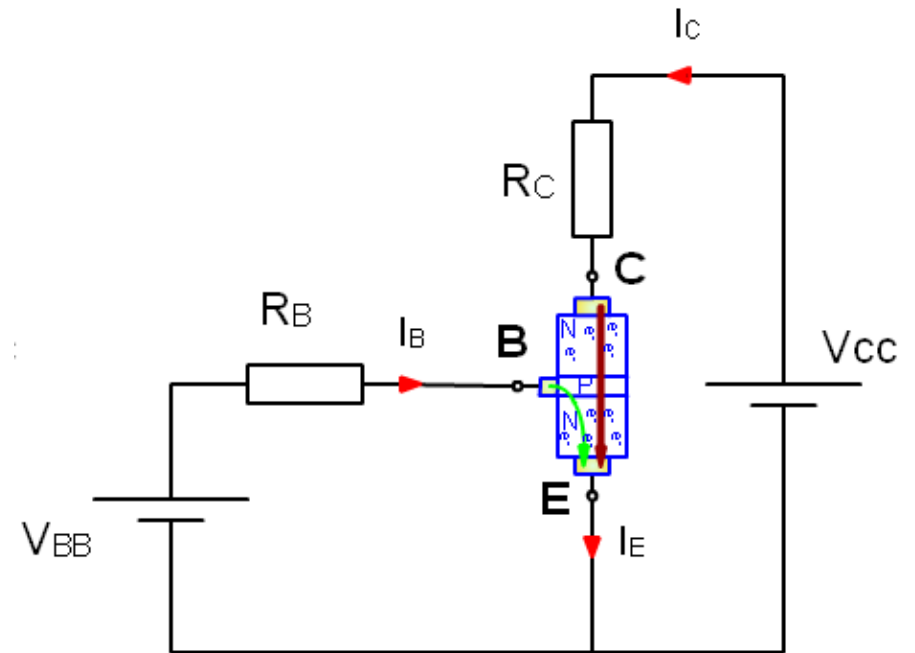
Equivalente de diodos



Transistor polarización

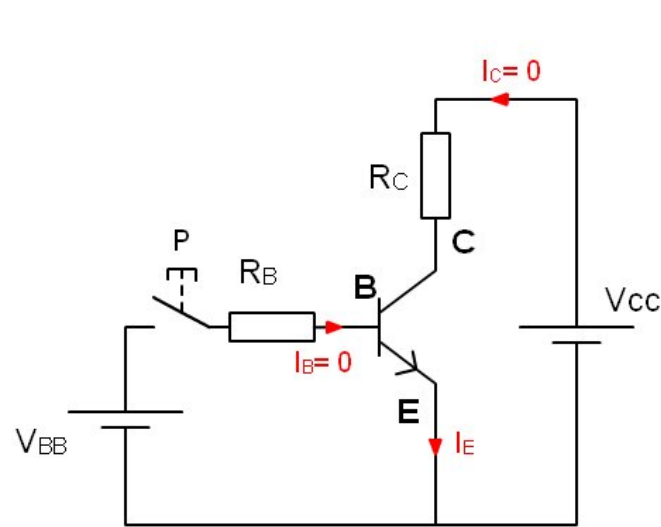


Corriente base-emisor

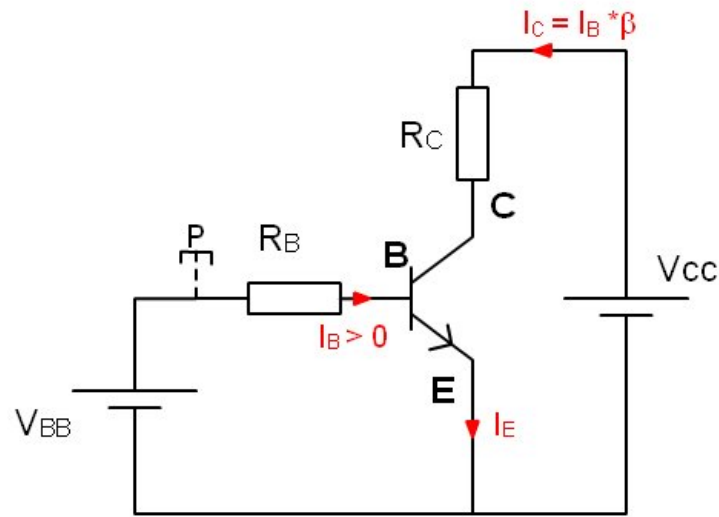


corriente colector-emisor

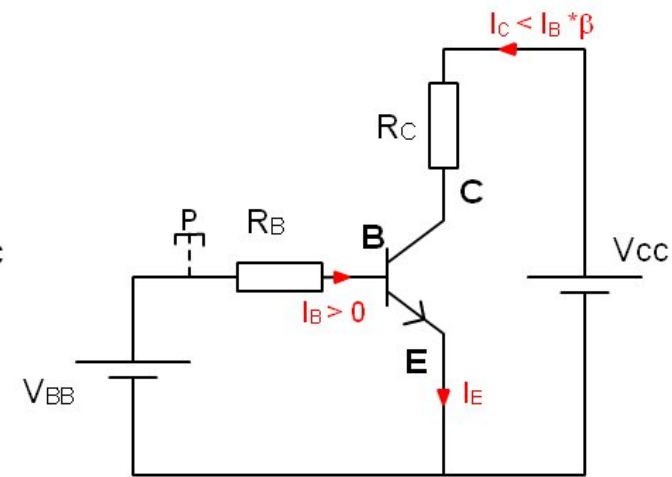
Transistor, corte, activa y saturación



Transistor en corte

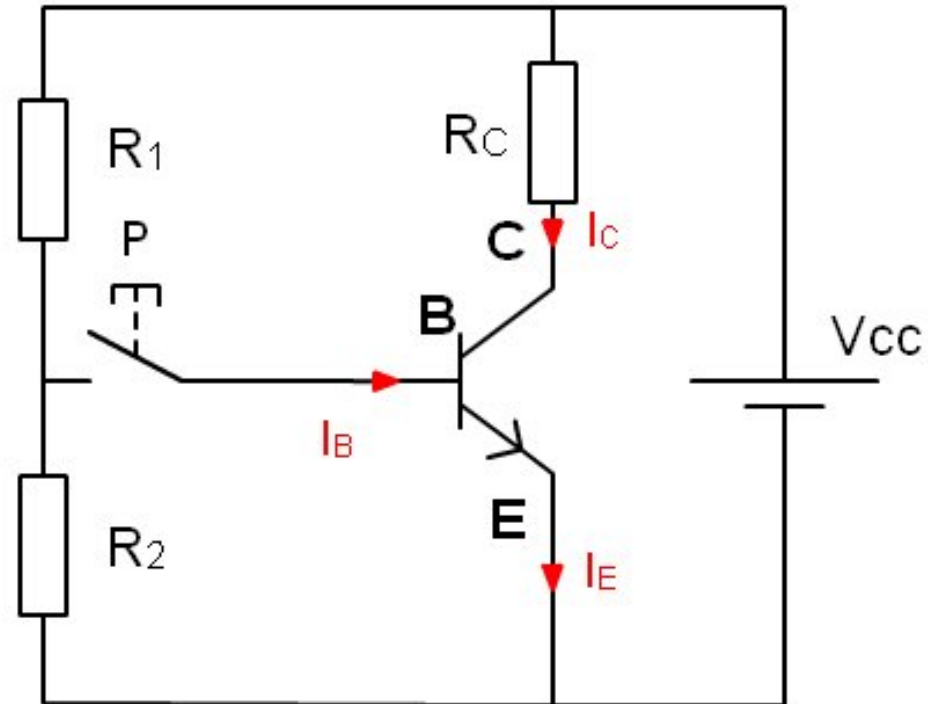
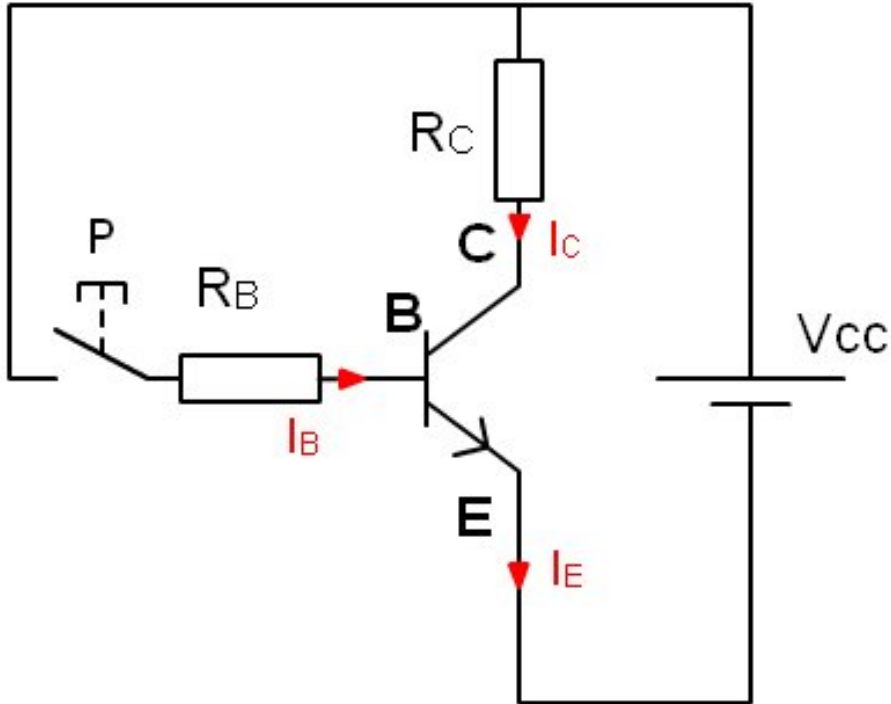


Transistor en activa



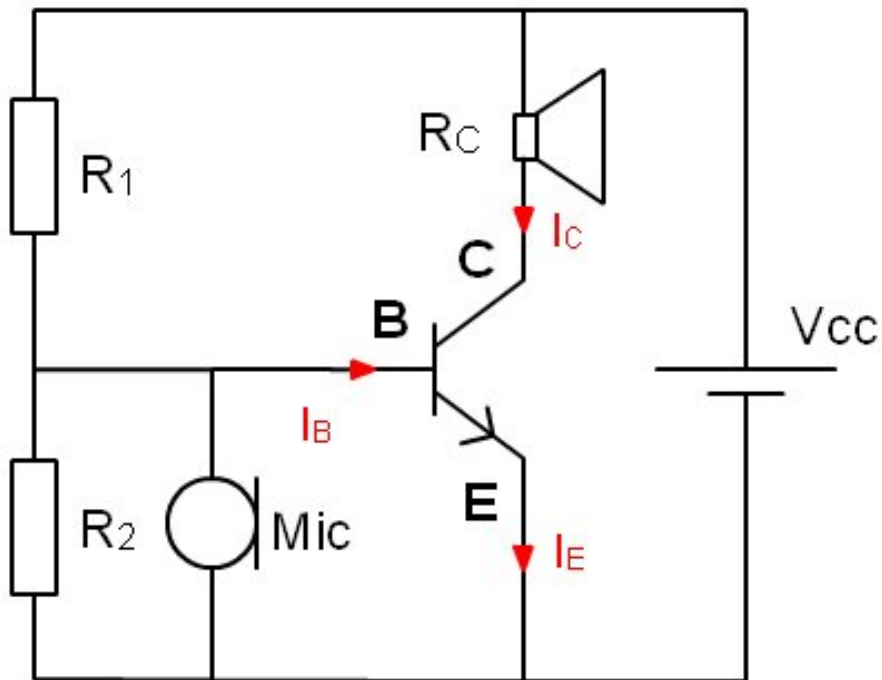
Transistor en saturación

Polarización con una fuente

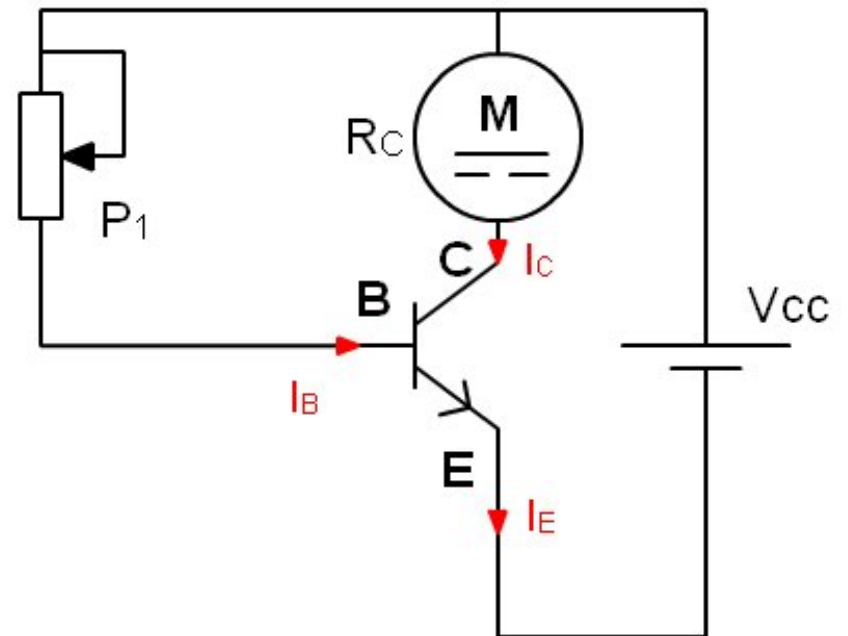


Montajes

Amplificador de sonido

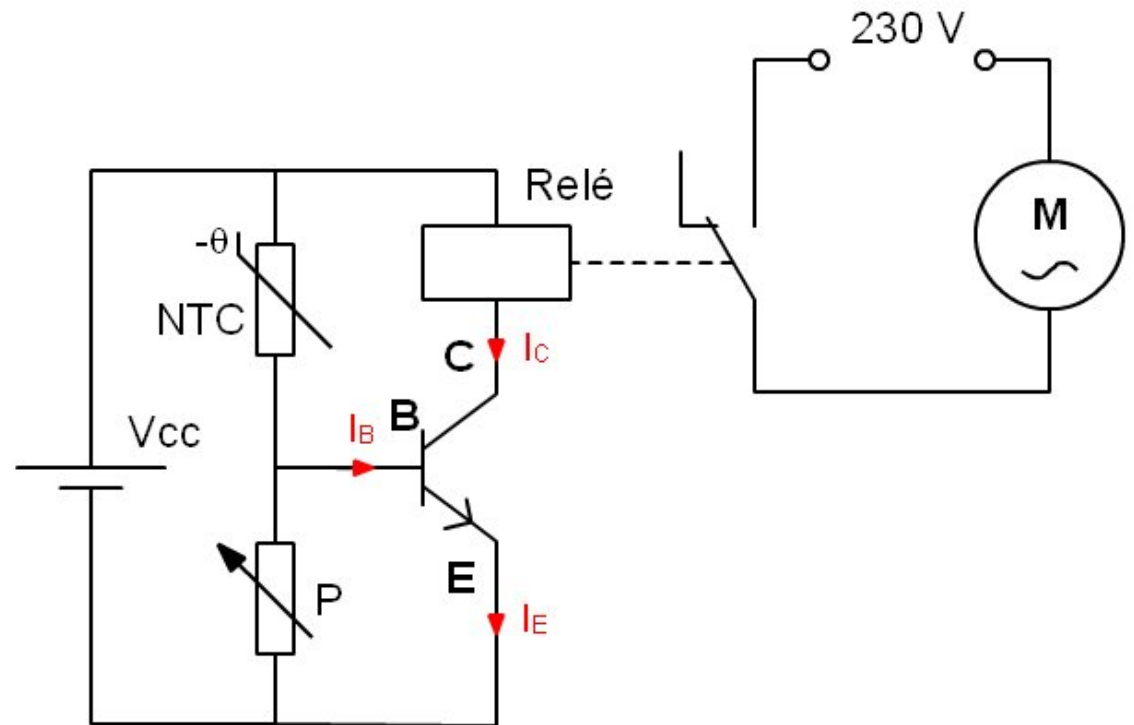
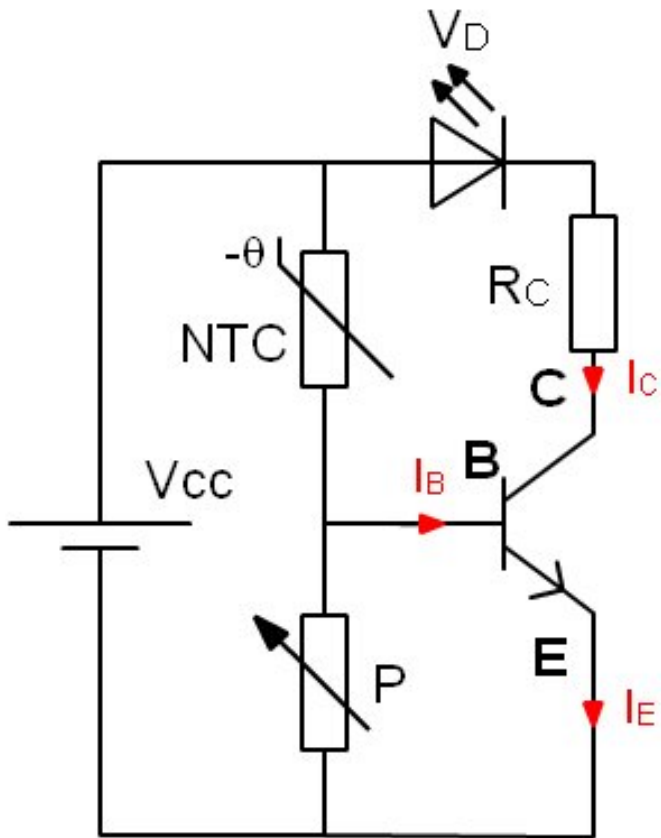


Control de velocidad de un motor

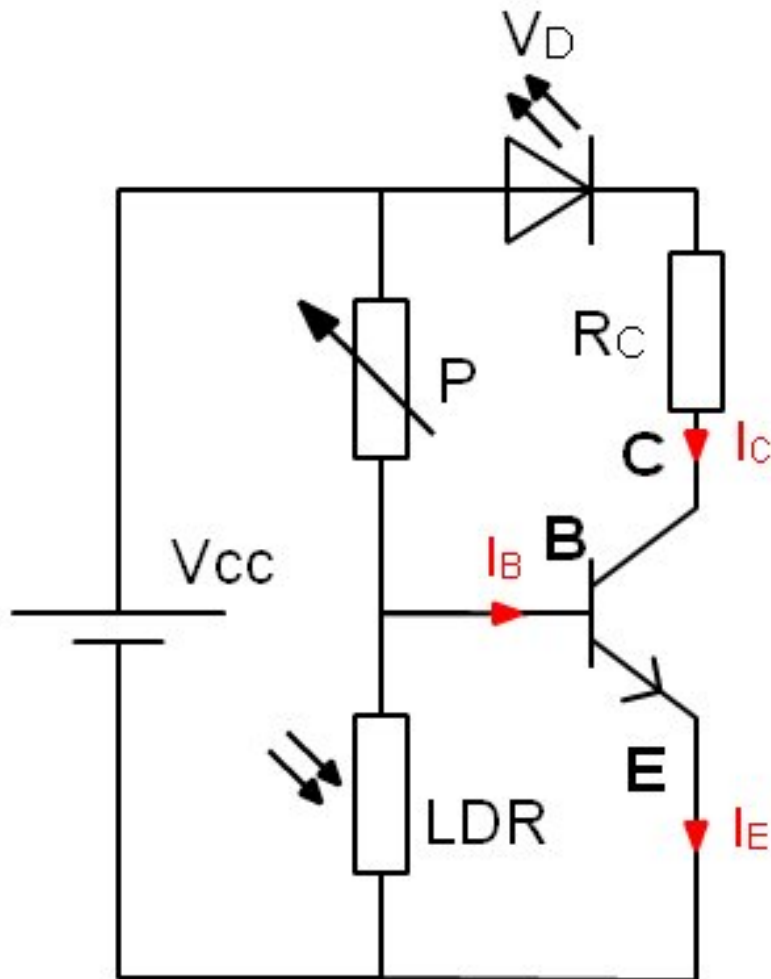


Montajes

Control de temperatura con NTC



Montajes



Control de intensidad luminosa con LDR